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Art Unit: 2816 Examiner: Luu, An T.
IBM Docket: AUS920030779US1(4019)

REMARKS

Claims 1-9 and 17-27 are pending and claims 1, 2, 4, 8, and 17-24 stand rejected. Applicant appreciates the recognition of the allowable subject matter in claims 3, 5-7, 9, and 25-27. However, claims 1, 4, 8, 17-19, and 20 stand rejected under 35 USC § 102(b) as being anticipated by Lee et al. U.S. Pat. 6,424,192 (hereinafter "Lee"). The Office action further rejected claim 2 under 35 USC § 103(a) as being unpatentable over Lee in view of JenningsCheck U.S. Pat. 5,059,924 (hereinafter "JenningsCheck") and claims 21-24 under 35 USC § 103(a) as being unpatentable over Lee in view of Boerstler et al. U.S. Pat. 6,522,207 (hereinafter "Boerstler"). Applicant respectfully suggests that the rejections with respect to the claims are traversed in light of the amendments and the following remarks.

Claim rejections under 35 USC § 102

Claims 1, 4, 8, 17-19, and 20 stand rejected under 35 USC § 102(b) as being anticipated by Lee. Applicant respectfully suggests that the rejections with respect to amended independent claim 1 are traversed with the following remarks.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single reference.¹ Furthermore, the identical invention must be shown in as complete detail as is contained in the claim.²

With regards to claim 1, Applicant respectfully requests that independent claim 1 be amended, as described in the "AMENDMENT OF THE CLAIMS" section above, to incorporate, to a substantial degree, the limitations of allowable claim 5. As amended, the Office action fails to establish a prima facie case of anticipation by Lee for amended independent claim 1 because citations of Lee provided as support for the rejections fail to describe, suggest or teach "each and every element as set forth in the claim[s]".

In particular, the Office action states:

Lee et al discloses in figure 5 an apparatus comprising a multi-phase ring oscillator (multi-feedback CMOS VCO) to generate more than one phases of an oscillator signal Vctrl responsive to an input signal REF; **a pulse generator 500**

¹ *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

² *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

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coupled with the multi-phase oscillator to generate a loop clock signal DIVCK, which is a multiple of the oscillator signal and related to the number of phases; and comparing circuit PFD coupled with the pulse generator to modify the input signal based upon a comparison of the loop clock signal with a reference clock signal REF as required by claims 1 and 4....-(emphasis added).

Amended independent claim 1 states:

... a pulse generator coupled with the multi-phase oscillator to combine pulses generated in response to a transition of a phase of the more than one phases of the oscillator signal to generate a loop clock signal, which is a multiple of the oscillator signal and related to the number of phases....-(emphasis added).

However, Lee (col. 7, lines 46-49) states:

... The modular counter 520 periodically selects one of TCK[0:11] according to an input control signal M, which ranges from 0 to 11. The resultant period of the 12-to-1 multiplexer 530 output DIVCK....-(emphasis added).

Lee does not describe, expressly or inherently, the elements of currently amended independent claim 1 by the generation of "a loop clock signal DIVCK". According to the quote above, Lee "*selects one of*" the phases output by the multi-feedback CMOS VCO in figure 5 to generate DIVCK rather than combining "pulses generated in response to a transition of a phase of the more than one phases of the oscillator signal to generate a loop clock signal". Thus, Applicant respectfully requests that the rejection of amended claim 1 be withdrawn and that amended claim 1 be allowed.

Further, claims 2-9 being dependent upon amended claim 1 incorporate the limitations of claim 1. Thus, Lee does not teach all the limitations of dependent claims 2-9 so Applicant respectfully suggests that these rejections do not apply and claims 2-9 should be allowed.

With regards to the independent claim 17, the Office action also fails to establish a prima facie case of anticipation by Lee because citations of Lee provided as support for the rejections fail to describe, suggest or teach "each and every element as set forth in the claim[s]".

In particular, the Office action states:

... As to claim 17, it is rejected for reciting a method/step derived from the apparatus of claim 1 which is rejected as noted above....-(emphasis added).

Whereas, claim 17 states:

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... combining the pulses to generate the output clock signal, the output clock signal being a multiple of the oscillator signal and related to the number of phases of the oscillator signal....(emphasis added).

Similar to the discussion above with respect to currently amended independent claim 1, Lee does not describe, expressly or inherently, the elements of independent claim 17 by the generation of "a loop clock signal DIVCK". According to the quote above, Lee "*selects one of*" the phases output by the multi-feedback CMOS VCO in figure 5 to generate DIVCK rather than "combining the pulses to generate the output clock signal". Thus, Applicant respectfully requests that the rejection of claim 17 be withdrawn and that claim 17 be allowed.

Further, claims 18-20 being dependent upon claim 17 incorporate the limitations of claim 17. Thus, Lee does not teach all the limitations of dependent claims 18-20 so Applicant respectfully suggests that these rejections do not apply and claims 18-20 should be allowed.

Claim rejections under 35 USC § 103(a)

The Office action rejected claim 2 under 35 USC § 103(a) as being unpatentable over Lee in view of JenningsCheck and claims 21-24 under 35 USC § 103(a) as being unpatentable over Lee in view of Boerstler.

To establish a prima facie case of obviousness, three basic criteria must be met.³ First, there must be a suggestion or motivation to modify or combine the references.⁴ Second, there must be a reasonable expectation of success in the modification or combination.⁵ Finally, the modification or combination must teach or suggest all of Applicants' claim limitations.⁶

In accordance with the claim amendments, claim 2 is now dependent upon amended independent claim 1. Applicant respectfully suggests that amended independent claim 1 is not anticipated by Lee as discussed above. Because this rejection of claim 2 is predicated upon anticipation of amended claim 1 by Lee, Applicant believes that this rejection of claim 2 is no longer applicable. Thus, Applicant respectfully requests that the rejection of claim 2 be withdrawn and that claim 2 be allowed.

³ Manual of Patent Examining Procedure §2142.

⁴ *In re Vaack*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991).

⁵ *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097, 231 USPQ 375, 379 (Fed. Cir. 1986).

⁶ *In re Royka*, 490 F.2d 981, 985, 180 USPQ 580, 583 (CCPA 1974).

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With regards to claim 21, Applicant respectfully requests that independent claim 21 be amended, as described in the "AMENDMENT OF THE CLAIMS" section above, to incorporate, to a substantial degree, the limitations of allowable claim 5.

Amended independent claim 21 states:

... a phase-locked loop circuit coupled with the instruction unit to output a pipeline clock signal to enable the instruction unit and to synchronize operations performed by the instruction unit with operations performed by other units along the instruction pipeline, *the phase-locked loop being adapted to generate more than one phases of an oscillator signal responsive to an input signal; to combine pulses generated in response to a transition of a phase of the more than one phases of the oscillator signal to generate a loop clock signal, which is a multiple of the oscillator signal and related to the number of phases; and to modify the input signal based upon a comparison of the loop clock signal with the reference clock signal....*-(emphasis added).

Similar to the arguments presented with regards to the 35 USC § 102(b) rejections, Lee does not describe, expressly or inherently, the elements of currently amended independent claim 21 by the generation of "a loop clock signal DIVCK". According to the quote above, Lee "selects one of" the phases output by the multi-feedback CMOS VCO in figure 5 to generate DIVCK rather than combining "pulses generated in response to a transition of a phase of the more than one phases of the oscillator signal to generate a loop clock signal". Because this 35 USC § 103(a) rejection of amended claim 21 is predicated upon anticipation by Lee of the phase-locked loop circuit of amended claim 21, Applicant believes that this rejection of amended claim 21 is no longer applicable. Thus, Applicant respectfully requests that the rejection of amended claim 21 be withdrawn and that amended claim 21 be allowed.

Claims 22-24, in accordance with the claim amendments, are now dependent upon amended independent claim 21 and incorporate the limitations of amended claim 21. As a result, Applicant respectfully suggests that the rejections of claims 22-24 are also no longer applicable. Thus, Applicant respectfully requests that the rejection of claims 22-24 be withdrawn and that claims 22-24 be allowed.

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CONCLUSION

Applicant respectfully requests that independent claims 1 and 21 be amended to reflect the subject matter recognized to be allowable in the Office action. With the introduction of the amendments, Applicant respectfully traverses the cited references in regards to the claim rejections under 35 USC §§ 102 and 103. Accordingly, Applicant believes that this response constitutes a complete response to each of the issues raised in the Office action. In light of the amendments made herein and the accompanying remarks, Applicant believes that the pending claims are in condition for allowance. Thus, Applicant requests that the rejections be withdrawn, pending claims be allowed, and application advance toward issuance. If the Examiner has any questions, comments, or suggestions, the undersigned attorney would welcome and encourage a telephone conference at (512) 288-6635.

No fee is believed due with this paper. However, if any fee is determined to be required, the Office is authorized to charge Deposit Account 50-3295 for any such required fee.

Respectfully submitted,

April 7, 2005
Date



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